2016

Proximal Muscle Weakness and Debility Secondary to Polymyositis: A Case Report

Adam Meidinger
University of North Dakota

PROXIMAL MUSCLE WEAKNESS AND DEBILITY SECONDARY TO POLYMYOSITIS: A CASE REPORT

by

ADAM MEIDINGER
Bachelor of Science Marketing, Psychology; Minor Philosophy
North Dakota State University, 2011

A Scholarly Project Submitted to the Graduate Faculty of the

Department of Physical Therapy

School of Medicine

University of North Dakota

in partial fulfillment of the requirements for the degree of

Doctor of Physical Therapy

Grand Forks, North Dakota
May, 2016

This Scholarly Project, submitted by Adam Meidinger in partial fulfillment of the requirements for the Degree of Doctor of Physical Therapy from the University of North Dakota, has been read by the Advisor and Chairperson of Physical Therapy under whom the work has been done and is hereby approved.

Michelle LaBrecque
(Graduate School Advisor)

David Reller
(Chairperson, Physical Therapy)

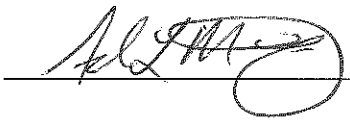
PERMISSION

Title PROXIMAL MUSCLE WEAKNESS AND DEBILITY SECONDARY TO POLYMYOSITIS: A CASE REPORT

Department Physical Therapy

Degree Doctor of Physical Therapy

In presenting this Scholarly Project in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the Department of Physical Therapy shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised my work or, in her absence, by the Chairperson of the department. It is understood that any copying or publication or other use of this Scholarly Project or part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and the University of North Dakota in any scholarly use which may be made of any material in this Scholarly Project.

Signature 

Date 11/9/15.

TABLE OF CONTENTS

LIST OF TABLES

ACKNOWLEDGEMENTS

I'd like to thank the faculty of the UND PT department, my first clinical instructors, and my friends and families for giving me the foundation and support necessary to become a physical therapist. You have made this a great journey. Also, all my patients – past and future – you're the reason we do this.

ABSTRACT

BACKGROUND AND PURPOSE: Polymyositis (PM) is the most common inflammatory myopathy in persons over age 50.[1] It predominantly causes weakness at proximal musculature including the trunk, hips, thighs, shoulders, upper arms, and neck leading to challenges with ambulation and mobility, community activities, and difficulty swallowing, eating, and talking.[2] Studies have shown physical therapy to be a staple in the plan of care for treatment of PM to aid in the restoration of muscle function and to improve or prevent further loss of strength.[3,4] The purpose of this case report is to outline physical therapy's role in the treatment of a patient who showed both improvement and digression in terms of strength and mobility secondary to polymyositis.

CASE DESCRIPTION: The patient was a 69-year-old female presenting to swing bed physical therapy for weakness and debility secondary to PM. The patient had decreased balance and was unable to independently rise from a chair. She demonstrated 2/5 MMT bilaterally at the hip and shoulder preventing her from being able to complete most ALDs, transferring, and bed mobility. She could ambulate up to 200 feet with SBA for safety but fatigued quickly.

INTERVENTION: The patient was seen for 11 sessions during her 15-day swing bed stay and two to three times per week for three weeks as an outpatient. Physical therapy interventions included task specific full body strengthening and endurance interventions, gait training, balance activities, and as needed manual therapy techniques for pain management. Strengthening included upper extremity assisted ROM at the shoulder, weight resisted UE exercises, assisted hip and knee exercises in supine and/or sitting, weight resisted LE exercises, sit to stands, ambulation for distance, and core-focused rolling and assisted sitting exercises.

OUTCOMES: The patient gained the ability to rise from a lift chair and roll in bed independently. Endurance increased, and she was able to ambulate up to 550 feet with SBA for safety. Upper extremity strength remained unchanged while in swing bed, however as an outpatient strength increased slightly. The patient reported better-perceived tolerance to transfers and demonstrated improved balance. Three weeks into outpatient therapy, she had a reaction to her Prednisone treatments and developed situational diabetes mellitus causing muscle weakness and debility. She was hospitalized for management.

DISCUSSION: The patient had a long and difficult stay at different medical facilities to manage her PM. Even with her unexpected medical difficulties, the patient demonstrated improvement of muscle function, greater in her LEs than UEs. This led to improved functional mobility, improved balance, and improved tolerance to ADLs. This case report outlines the need for further research and suggests that a detailed physical therapy plan of care should be created and driven by functional and ADL specific goals.

CHAPTER I

BACKGROUND AND PURPOSE

Idiopathic inflammatory myopathies are a classification of rare, systemic, acquired diseases. There are four types: dermatomyositis, polymyositis, immune-mediated necrotizing myopathies, and sporadic inclusion body myositis.[5] Myopathy is a term that means "muscle disease." Inflammatory myopathies are a group of diseases that involve muscle inflammation with accompanying weakness. Although exact causes are unknown, evidence suggests this can be caused by an allergic reaction, exposure to certain substances or medicines, or exposure to a virus or other infectious agent.[6] The chronic myopathic diseases also have no specific identifiable cause and are thought to be autoimmune disorders with a rheumatic component.[6] Idiopathic inflammatory myopathies most commonly affect adult patients of Caucasian ethnicity. Females are affected at a 5:1 ratio to males for people ages 18-44 years of age. Incidence rates are estimated between 5-10 cases per million in adults and 1-5 cases per million in children. The condition may affect those under the age of 18 and is referred to as juvenile derma/polymyositis.[5]

Polymyositis (PM) is defined as an uncommon acquired idiopathic inflammatory myopathy. As with all inflammatory myopathies, PM affects women more than men and causes can be varied to unknown. It is the most common inflammatory myopathy in persons over age 50.[1] PM also resembles an autoimmune disorder where the body attacks its own tissues. It is believed the condition is triggered by environmental factors in genetically susceptible individuals. Associated conditions include Raynaud's, connective tissue disorders such as lupus, rheumatoid arthritis, scleroderma, and Sjogren's, cardiovascular diseases such as myocarditis,

congestive heart failure, and arrhythmias, and lung diseases such as fibrosis. Possible triggers include drugs such as statins, viruses, cancer, or exacerbation of connective tissue disease.

Typical presentation of PM in both juvenile and adult populations includes predominant weakness at proximal musculature including the trunk, hips, thighs, shoulders, upper arms, and the neck.[2] Proximal muscle weakness can progress to the respiratory and/or the accessory respiratory muscles as well as muscles involved in speech and swallowing. Affected muscles digress in strength at a rate unique to each patient's condition. A similar condition known as dermatomyositis (DM) is a connective tissue disease related to PM but involves inflammation of the skin as well as inflammatory myopathy.[7] Managing inflammatory myopathies is driven by the goals of reducing inflammation, restoring muscle performance, and preventing chronic muscle disease and extra-muscular organ damage to restore quality of life.[5] Common medications used to treat PM include corticosteroids such as prednisone or corticosteroid-sparing agents such as azathioprine and methotrexate, or rituximab which are commonly used for arthritis.[7]

The medical management team, under the direction of a rheumatologist, often includes physical therapists, dieticians, and consultations to cardiologists, pulmonary specialists, and speech therapists. Together this team will work to restore quality of life with intervention strategies determined on a case-by-case basis.[1]

Physical therapy intervention is considered a staple in the plan of care for a person affected by PM or any inflammatory myopathy.[3,4] The goal of therapy is to restore muscle function and improve or prevent further loss of strength during acute episodes.[5] Because lower extremity, hip, core, and shoulder musculatures are commonly affected, persons face challenges with ambulation and mobility, ADLs including grooming, washing, and eating, community involvement due to difficulties with balance, transferring, and mobility, and difficulty

swallowing, eating, and talking.[1] Due to the physical nature of the condition, there have been studies that examine the efficacious use of physical therapy interventions and exercise as a treatment for PM.[8]

Physical rehabilitation interventions present unique difficulties in patients with PM because of the degree of physical limitations that present as well as multi-muscle and system involvement, often times including respiratory musculature. It is recommended that exercise prescription focus on task-specific performance, such as eating and grooming as well as mobility and ambulation, and that pulmonary physical therapy intervention be included to improve respiratory function and improve tolerance to exercise.[9] It is also recommended that diet be considered a vital intervention strategy for PM to help combat any extraneous sources of inflammation, which often warrants a referral to a registered dietician.[1]

During an acute onset of PM, patients often receive medical management and forgo therapy services until medical stabilization has occurred. This is because it is assumed inflammation will inhibit proper exercise and strengthening interventions. A study examined patients 2-3 weeks post-acute phase PM. Active PM patients received proximal, distal, and respiratory muscle strengthening interventions. No decrease in muscle function was noted and respiratory muscle strength increased during disease progression. This study supports early physical therapy intervention for PM/DM patients to prevent muscle atrophy.[10] A similar early-intervention study by Alexanderson et al showed that long-term improvements in strength were found in exercise groups not otherwise present in non-exercise groups. However, general functional mobility was not shown to be sustained without continued exercise for patients with a history of PM.[11]

Resisted exercise prescription programs for adults with PM were shown to reduce pain, improve function, and improve physical conditioning as measured by intramuscular Type-I fiber

concentration, intramuscular gene expression for protein synthesis, and SF-36 scores.[12] Resisted exercise programs were also shown to decrease levels of intramuscular inflammation as measured by medical biomarkers believed to be the result of increased intramuscular processes. While it is understood that resisted exercise may temporarily increase intramuscular inflammation, this was not shown to exacerbate inflammation caused by PM/DM.[12] Volume of oxygen maximal uptake (VO2 max), overall health and disability, as well as overall disease activity was shown to improve with a combination of aerobic and resisted exercise programs in adults with chronic PM/DM.[4] Physiologic changes in aerobic milieu in the muscle as well as aerobic capacity were improved in juveniles and adults with both acute and chronic conditions leading to reduced disability.[3]

Based on literature review and accepted medical practice, physical therapy plays an important role in the treatment and management of functional strength, mobility, and quality of life of patients diagnosed with polymyositis.

The purpose of this case report is to outline a patient who showed both improvement and digression in terms of strength and mobility secondary to polymyositis. She also faced complications secondary to medical treatment. This case study outlines the role of physical therapy in her treatment and recovery.

CHAPTER II

CASE DESCRIPTION

HISTORY

A 69-year-old female of Caucasian descent presented to physical therapy following admission to swing bed services for weakness and debility secondary to polymyositis (PM). Her condition started approximately six months prior to her swing bed admission. She began with outpatient medical management for treatment but was demonstrating proximal muscle weakness with weakness progressing into her upper extremities. This prevented her from being fully able to care for herself but she did participate in self-care. Her husband, her main caregiver, recently underwent a cholecystectomy surgery and was unable to assist her with ADLs.

As the disease progressed she noticed a slow loss of UE strength and increased balance impairments with a decrease in ambulation endurance. Prior to the disease progression she was independent with ADLs. Prior to her diagnosis with PM the patient was in good health with a medical history of hypertension, hysterectomy, and bilateral cataract extraction. The patient was currently taking Prednisone for treatment of PM. She was also on a medication for management of hypertension.

At admission, the patient exhibited signs of hemochromatosis and diabetes mellitus believed to a complication of Prednisone. Physically, she was unable to independently rise from a chair but did ambulate up to 200 feet without an assistive device and with SBA for safety. She had not been able to participate in normal social interactions such as visiting friends and family

and attending church due to weakness and difficulty with mobility. She reported no smoking, use of drugs, or regular use of alcohol. Her family medical history was unavailable.

The patient's primary language was identified as English but she did speak some German. The patient worked as a school lunch provider at a rural school and retired about one year prior. Before being affected by PM, she also helped her husband with farm and ranch work. Their closest child lived approximately 90 miles away. Her social activities included spending time with friends and family, attending church, and helping her husband with yard work. She lived in the country approximately 15 miles from the nearest town with medical services. All services she needed to access were on the main floor of her home but there were four steps to enter. She used assistive devices for safety including a walker and railings to navigate within her home. Her goal for discharge was to return back to her home following her husband's recovery. Her therapy needs consisted of strengthening and endurance training so that she would be able to complete ADLs independently. This was her first time receiving physical therapy.

EXAMINATION AND EVALUATION

The patient was admitted to swing bed with HR and BP WNL, no signs of edema peripherally, and clear lung sounds. She was 65" tall and 175lbs with a BMI of 29.1 classifying her as overweight. The patient reported being right handed. She was unrestricted with sleep, cognitively orientated x 4, and demonstrated no apparent psychological impairments such as delusions or hallucinations. She did demonstrate signs of lethargy and possible situation-induced anxiety as identified by therapy services and her admitting physician. The patient reported no pain. Skin integrity was intact and the patient demonstrated no anatomical abnormalities. Lower and upper extremity muscle symmetry was normal and posture appropriate; she did exhibit slightly stooped posture in sitting due to weakness. Static standing posture appeared appropriate. The patient did have some ROM and strength limitations as noted in Tables 2-1 and 2-2.

Table 2-1: **UE and LE Range of Motion**

Bilateral UE	AROM	wrist, elbow WFL	shoulder flex 70° abduction 65°	remaining WFL
	PROM	grossly WFL		
Bilateral LE	AROM	knee, ankle WFL	hip was unable to be tested in appropriate position due to weakness	
	PROM	grossly WFL		

Table 2-2: **UE and LE Strength**

Bilateral UE	Gross hand/wrist MMT 4/5	Gross elbow MMT 4-/5	Gross shoulder MMT 2/5
Bilateral LE	Gross ankle MMT 4+/5	Gross knee MMT 4/5	Gross hip MMT 2/5

Mobility: Patient's standing balance was diminished due to LE and core weakness. She was able to ambulate 200 feet independently on level surfaces with no AD before needing to sit due to muscle fatigue. Stand by assist of therapist and gait belt were used for safety. Static sitting balance was good, however dynamic sitting balance, although not specifically tested, appeared to be diminished. Patient required Min/Mod-A x 1 for sit to stand transfers and bed mobility, including supine-to-sit and rolling.

Functional Assessment: The Elderly Mobility Scale (EMS) was completed as part of the initial evaluation as mobility was a large part of this patient's impairment. The patient's EMS score was 12/20, which placed the patient borderline in terms of safe mobility and independence in ADLs as she required some help with mobility. Even with this score, the patient needed assistance with basic ADLs including transfers and toileting. Strength loss due to PM was the largest underlying factor for patient's functional level.

The EMS was shown to have high intra and inter-rater reliability as well as high validity for classification of elderly mobility indicated in acute care settings.[13] The EMS was designed to assess mobility in frail, elderly people on seven items considered essential for performing ADLs.

These include transfer, gait, and balance tasks. A score of 14-20 indicates the patient maneuvers alone and is independent in basic ADLs. Individuals are considered generally safe to go home but may require some help. A score of 10-13 indicates the patient is borderline in terms of safe mobility and independence in ADLs. A score <10 indicates the patient is dependent in mobility maneuvers and requires help with basic ADLs. They may require home care or long-term care. [13]

PT DIAGNOSIS

Patient demonstrated severe strength and mobility impairments correlating with common symptoms of PM. Deconditioning was also apparent in her ambulation abilities and distance. Proximal muscles of the UE, LE, and trunk demonstrated the greatest amount of weakness with weakness also progressing to her more distal UE as apparent in loss of strength at her elbows. Because of these impairments, the patient was unable to perform self-care, sit-to-stand transfers, and was limited in bed mobility. She could not reach to the back of her head so dressing, grooming, and eating activities had also become affected. She was unable to participate in community and leisure activities due to her lack of strength and endurance. She was at a high-risk for falling and had standing and dynamic sitting balance impairments secondary to weakness. She also faced potential respiratory difficulties if accessory muscle strength continued to decline.

SHORT TERM GOALS (to be met in 1 week)

1. Patient will improve bilateral shoulder and hip strength to 3/5 to increase her independence with activities of daily living.
2. Patient will demonstrate sit-to-stand transfer with Min-A of 1 to increase independence in mobility.
3. Patient will improve Elderly Mobility Scale score by 2-3 points to demonstrate improved safety in transfers, gait, and balance.

LONG TERM GOALS (to be met prior to discharge from swing bed)

1. Patient will improve bilateral shoulder and hip strength to 4/5 to increase her independence with activities of daily living.

2. Patient will demonstrate sit-to-stand transfers independently using a lift chair to increase independence in mobility.

3. Patient will improve Elderly Mobility Scale score by 4-6 points to demonstrate improved safety in transfers, gait, and balance.

PROGNOSIS

With proper medical management of PM, the prognosis was good for the patient to return home and be more independent with ADLs. It was also anticipated that she would return to community and leisure activities with the potential of using an assistive device for added safety.

DISCHARGE CRITERIA

Patient would be discharged from physical therapy services when anticipated goals were achieved, when she was no longer receiving benefit from physical therapy services, or when requested by the patient and/or referring physician.

PLAN OF CARE

The patient was appropriate for PT services for treatment of strength and endurance loss secondary to PM. The patient's treatment plan of care included modalities for pain management, manual therapy to improve soft tissue and joint mobility, therapeutic exercise to improve strength and mobility, gait and balance training, and endurance exercises. The initial plan of care consisted of seeing the patient 4 to 5 times per week during her swing bed stay.

CHAPTER III

INTERVENTION

The patient was seen once daily, five times per week, for 45-60 minute sessions for a total of 11 visits. Three different therapists saw her, as each therapist would travel to different community clinics on different days of the week, rendering them unavailable to see inpatients on those specific days. The patient's primary symptoms from polymyositis (PM) were severe strength and mobility impairments. Because of the decrease in her mobility, the patient also exhibited signs of deconditioning apparent in her decreased tolerance to exercise time and ambulation distances. Exercise was started immediately as strengthening has been shown to slow and combat the strength lost due to PM. [4,5,14] PT interventions included general full body strengthening and endurance interventions, as strength and endurance were the patient's main functional limitations.

Intervention strategies were based on patient's symptoms and progression varied on a day-to-day basis. Interventions were chosen based on the patient's tolerance during therapy sessions with numerous strengthening exercises completed (see Table 3-1). Therapeutic activities were also varied and based on the patient's response and are described in Table 3-2. The tables are not comprehensive of every exercise and activity as the patient was seen by three therapists and all intervention data was not available at the time of this case report.

Table 3-1: **Strengthening Exercises**

Exercise	**Weight/Resistance**	**Sets/Reps/ Time**	**Progression**
NuStep	Level 3	10-12 minutes	Increase level of resistance
Sit to stands	Body weight, knees at 115°	1 set/10 reps	Decrease seat height/increase knee flexion
Seated on Swiss Ball	Weight shifting w/ arms flexed on chest	6 minutes	Increase time, arms away from midline
Standing hip flexion, abduction, extension	Standing at high table – Limb weight	2 sets/10 reps each direction	Increase reps, add ankle weight
Seated long-arc quad	3# ankle weight	2 sets/10 reps	Increase reps, increase weight
Seated hamstring curls	Blue TheraBand	2 sets/10 reps	Increase reps, increase resistance
Seated hip flexion	Limb weight, concentric and slow eccentric	2 sets/10 reps	Increase reps, add ankle weight
Seated hip abduction	Yellow TheraBand	2 sets/10 reps	Increase reps, increase resistance
Seated ankle plantar/dorsi flexion	Yellow TheraBand	2 sets/10 reps	Increase reps, increase resistance
Supine heel slides	Limb weight	2 sets/10 reps	Increase reps, add resistance
Supine hip flexion	Limb weight, AAROM	2 sets/10 reps	Increase reps, AROM, add resistance
Seated bicep curls	3# dumbbell	2 sets/10 reps	Increase reps, increase weight
Seated elbow extension	Yellow TheraBand	2 sets/10 reps	Increase reps, increase weight – progress to sitting pushdowns into chair
Seated shoulder flexion	Limb weight, concentric and slow eccentric	2 sets/10 reps	Increase reps, add dumbbell weight
Dowel self-assist shoulder abduction	AAROM with dowel	2 sets/10 reps	Progress to AROM, add weight
Supine therapist-shoulder press	AAROM with dowel	2 sets/10 reps	Progress to AROM, add weight
Scauplar rows	Yellow TheraBand	2 sets/10 reps	Increase reps, increase resistance
Supine briding	Bodyweight	2 sets/6 reps	Increase reps, add resistance
Supine to lying	Bodyweight – 3 pillows under shoulders	2 sets/6 reps	Decrease pillow support until fully supine

Table 3-2: **Therapeutic Activity***

Activity	**Degree**	**Condition**	**Progression**
Gait training	400 feet x 2 (needed rest break)	SBA for safety	Increase distance, increase speed
Stair mobility	On to and off of 6" or 8"box	Hand rail and quad cane. Max-A on ascending, Mod-A on descending	Decrease assistive devices, increase step number, increase step height
Bed mobility, rolling	Supine to side lying	Independent – needed cueing	Supine to prone, Supine or side lying to seated
Bed mobility, scooting	Seated, left to right and right to left	Independent – moderate difficulty	Increase number of times
Transfer training	Sit to stand from hospital bed	Mod-A, verbal cues required	
Mini squats	Body weight	Increase endurance	Increase number
Marching while holding handrail	Body weight	Increase dynamic balance	Decrease stability, eliminate hand support, increase instability of surface
Stair training	5 steps ascend and descend	Mod-A with handrail and quad cane	Increase step number, decrease stability, decrease assistance

*A gait belt was used with all seated or standing exercises and activities for safety.

Gait training was performed to ensure patient's safety during ambulation. Gait training also doubled as a functional endurance exercise. Gait training was performed with the use of a front-wheeled-walker and gait belt with assist/contact guard for patient safety. She ambulated in the hallways of the hospital and therapy department. Initial distance patient tolerated during gait training was 800 feet with a rest break after 400 feet. The patient demonstrated increased lateral weight shift, wide base of support, and decreased step length. Distance was increased each day as tolerated.

Therapeutic activity, focusing on balance training, was included as the patient exhibited decreased balance. Some alternative therapeutic activities included standing on 1 to 3" foam pads while incorporating reaching, standing on a trampoline incorporating reaching, and stepping exercises to the sides and backwards. The patient was assisted or guarded by two therapists during these activities.

The patient would experience some pain primarily due to new exercises and activities. Pain was mostly experienced in UE musculature such as upper trapezius and deltoids as well as low back postural musculature. Modalities for pain management were performed PRN and included interferential current therapy: TENS, with parameters set to 80-120Hz, intensity as tolerated, for 10 minutes. Manual therapy techniques consisting of soft tissue mobilization, myofascial therapy, and trigger point release techniques were also used for pain management and to improve tissue mobility prior to exercise. She reported a decrease in pain with these interventions.

The patient was discharged to her home after 15 days in swing bed care. She continued therapy as an outpatient and was seen two to three times per week for continued strengthening and balance activities. She had been given a home exercise program at outpatient therapy to be completed two to three times per day including the strengthening and balance activities the patient was performing during therapy sessions. Her husband was coached on proper assistive transfer techniques to ensure both his and the patient's safety during transfers. More advanced balance and strengthening activities were also performed during therapy under the supervision of physical therapists for the patient's safety.

CHAPTER IV

OUTCOMES

Throughout the course of the patient's 15-day stay in swing bed, she did demonstrate gains in terms of functional strength and endurance. Although MMT grades did not change in her UE or LEs, she was able to rise from a lift chair independently. She also demonstrated improvements in bed mobility and was able to roll independently. Her supine-to-sit transfers still required MIA. She continued to exhibit balance deficits and it was decided that, for patient safety, she ambulate at all times using a FWW. Her endurance progressed and she was able to ambulate 550 feet before needing to rest. She still required assistance for many ADLs as her UE strength was not improving as quickly as her LE strength and her UE AROM remained limited. Due to her continued improvement and the recovery of her husband, the plan to discharge the patient home with continued physical therapy as an outpatient was discussed with the patient, her spouse, and her children.

She was discharged home and as an outpatient, her UE strength increased slightly, up to ½ MMT grade, but continued to be impaired. Her balance and endurance improved which lowered her fall probability. It was recommended that the patient continue to use a FWW for safety during ambulation. She reported better tolerance to transfers within her house, needing less assistance from her husband. Socially, she was able to travel with assistance from her home to therapy and also to church activities. The patient was satisfied with her progress in terms of physical therapy and was motivated to work hard and continue outpatient physical therapy. An Elderly Mobility Scale score was reassessed during outpatient therapy and was found to be

14/20, an increase of two points. This increase indicates that a patient is generally safe to go home but may still require some help with ADLs.

Three weeks after beginning outpatient therapy, the patient had a reaction to her Prednisone treatment and developed uncontrolled diabetes mellitus. It was unclear what specifically prompted the reaction. She also demonstrated rapid-onset muscle weakness and debility related to the Prednisone reaction. She was hospitalized for management of both the diabetes mellitus and debility and began inpatient physical therapy. She demonstrated a severe loss of strength with this re-admission and was unable to independently rise from a lift chair, position herself in bed, or walk independently with the use of an assistive device. Eight days later, following medical stabilization of her condition she was discharged to a local skilled nursing facility for continued medical care and therapy. Within a week of admittance to the nursing facility, she contracted Methicillin-resistant Staphylococcus Aureus (MRSA) from a medical port. She was readmitted to the hospital under quarantine. Once the MRSA was controlled, she was transferred to a larger metropolitan city with a specialized SNF where she was able to receive physical therapy and assisted exercise throughout the day and was more closely medically monitored. From there, a referral was made to the Mayo Clinic where the patient was medically managed for PM. After Mayo, she was discharged back to the original SNF where she remained at the time of this case report. Her goal was to return home by the end of the year.

CHAPTER V

DISCUSSION

Once medically managed for Polymyositis, the patient began to show success utilizing physical therapy services to improve her strength, mobility, and tolerance to ADLs. As a swing bed patient, her LE strength and endurance improved as she was able to independently rise from a lift chair and she increased ambulation distance between rest breaks. She also demonstrated improved bed mobility by being able to independently reposition herself with less overall cueing. During outpatient physical therapy, the patient demonstrated up to ½ MMT grade improvement in her UE strength bilaterally allowing her to participate in more ADLs such as grooming and brushing her teeth. She also reported improved tolerance to community mobility with the assistance of her husband.

During both her swing bed and outpatient stays, she began to demonstrate restoration and improvement of muscle function, especially in her LEs. These outcomes are consistent with physical therapy's role in the treatment of PM, as physical therapy is cited as an essential treatment to restore muscle strength and function.[5,9,10,15] The patient's treatment protocol was dependent on the patient's tolerance and was based on task-specific exercises as suggested by Aboussouan's research.[9] Task-specific interventions included ambulation, stepping, and reaching activities, as mobility impairments and self-care were the patient's main functional limitations. This supports the research of Pappu and Seetharaman[1] stating the most common challenges of a PM patient include ambulation and mobility, ADLs including grooming, washing, and eating, and community involvement due to difficulties with balance, transferring, and mobility. This is

due to LE, hip, core, and shoulder musculature being most commonly affected.[1] Additional treatment could have included respiratory physical therapy interventions with the goal of strengthening the patient's respiratory musculature as these muscles are also commonly affected by PM.[9] Dietary interventions or a referral to a dietician could have been provided to help combat any extraneous sources of inflammation.[1]

REFLECTIVE PRACTICE

There are limitations to this case report, mainly the difficulty the patient experienced with medical management of her PM. The patient's transfers to different medical facilities were appropriate considering the medical challenges she experienced. Her acute exacerbations regressed her muscle strength and endurance gains, as well as decreased her self-reported motivation and tolerance to therapeutic interventions. Because the patient was transferred to numerous care facilities during the course of her care, detailed information on the patient's current status was unable to be obtained at the time of this case report.

Being able to complete a full physical therapy re-evaluation of the patient's current status and compare changes in her medical treatment with therapy progressions would give a more complete picture of physical therapy's influence on her outcomes. It is difficult to draw complete conclusions about therapy's influence because of the length of therapy in each specific setting (i.e. swing bed, outpatient, acute care, etc.), in addition to the medical difficulties the patient encountered.

The physical therapy plan of care established for the patient focused on task-specific interventions including exercises to improve reaching abilities, ambulation, transfers, and bed mobility. The severe PM involvement and other medical issues the patient experienced required physical therapy to challenge the patient and mimic the activities she may experience day-to-day while working to prevent learning substitutions if possible. As the therapy team knew the time

with the patient was potentially limited (dependent on her swing bed stay length), and it was not known if she would seek outpatient services, the goal was to regain muscle strength and function as quickly as possible.

Areas of further research should include case studies and reports outlining cases similar in nature where medical management was difficult or delayed. Intervention outcomes based off of therapy services should be examined. Also, a more detailed understanding of how medications such as Prednisone can intramuscularly cause decreases in strength and muscle function could have led to an improved plan of care.

One major benefit of this case report is that it provides an example of the extraneous difficulties a patient can experience during the course of physical therapy sessions. This case report outlines the need for further research and suggests that a detailed physical therapy plan of care should be created and driven by functional and ADL specific goals.

ADDENDUM

The author of this case report has connections to the patient outside of physical therapy services. The patient's husband informed the author that the patient returned home 10 months after her initial swing bed stay. The patient remained moderately dependent on him for help with transfers and ADLs. She continued outpatient physical therapy and twelve months after her initial swing bed stay the patient was able to independently perform sit-to-stand transfers from a regular dining room chair as well as from her bed. Her strength, function, and motivation continues to improve.

REFERENCES

1. Pappu R, Seetharaman M. Polymyositis treatment and management. Medscape Web site. http://emedicine.medscape.com/article/335925-treatment. Updated 2014. Accessed March 14, 2015.
2. Mayo Clinic Staff. Polymyositis. Mayo Clinic Web site. http://www.mayoclinic.org/diseases-conditions/polymyositis/basics/symptoms/con-20020710. Updated 2014. Accessed March 19, 2015.
3. Lundberg I, E., Vencovsky J, Alexanderson H. Therapy of myositis: Biological and physical. Curr Opin Rheumatol. 2014;26(6):704-711.
4. Alemo Munters L, Dastmalchi M, Andgren V, et a. Improvement in health and possible reduction in disease activity using endurance exercise in patients with established polymyositis and dermatomyositis: A multicenter randomized controlled trial with a 1-year open extension followup. Arthritis Care Res (Hoboken). 2013;65(12):1959-68.
5. Idiopathic inflammatory myopathy. DynaMed. http://Search.ebscohost.com.ezproxy.undmedlibrary.org/login.aspx?direct=true&site=DynaMed&id=113862. Updated December 2014. Accessed March 2015.
6. National Institute of Neurological Disorders and Stroke. Inflammatory myopathies. 2007.
7. Femia A. Dermatomyositis. Medscape Web site. http://emedicine.medscape.com/article/332783-overview. Updated 2014. Accessed March 19, 2015.
8. Böschung P., de Bruin ED., Tobler-Ammann BC., Maurer B., Knols RH. The relevance of applying exercise training principles when designing therapeutic interventions for patients with inflammatory myopathies: A systematic review. Rheumatology International. 2015;35(10):1641-1654.
9. Aboussouan L. Mechanisms of exercise limitation and pulmonary rehabilitation for patients with neuromuscular disease. Chronic Respiratory Disease. 2009;6(4):231-249.
10. Varjú C, Pethö E, Kutas R, Czirják L. The effect of physical exercise following acute disease exacerbation in patients with dermato/polymyositis. Clin Rehabil. 2003;17(1):83-87.
11. Alexanderson H, Munters L, Alemo, Dastmalchi M, et al. Resistive home exercise in patients with recent-onset polymyositis and dermatomyositis - A randomized controlled single-blinded study with a 2-year followup. J Rheumatol. 2014;41(6):1124-1132.
12. Alexanderson H. Exercise effects in patients with adult idiopathic inflammatory myopathies. Curr Opin Rheumatol. 2009;21(2):158-163.
13. Nolan JS, Remilton LE, Green MM. The reliability and validity of the elderly mobility scale in the acute hospital setting. J Allied Health Sci Pract. 2008;6(4):1-7.
14. de Sousa D, Junior IL. Evaluation of capacity aerobic and resistance exercises in patients with juvenile dermatomyositis and polymyositis: Literature review [Portuguese]. FISIOTER MOVIMENTO. 2009;22(4):489-496.
15. Wiesinger GF. Quittan M. Aringer M. Seeber A. Volc-Platzer B. Smolen J. Graninger W. Improvement of physical fitness and muscle strength in polymyositis/dermatomyositis patients by a training programme. Journal of Rheumatology. 1998;37(2):196-200.